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Nametkin carried out investigations of crude petroleum from several new oil fields which up to that time had not been studied. These studies included various Sakhalin fields and occurrences in the region of the Chusovaya River (Molotov Oblast'). The study of Chusovaya petroleum, which has a considerable sulfur content, was of the greatest interest. Nametkin developed a method of desulfurizing this petroleum.

An extensive comparative investigation of USSR and foreign petroleum products has been carried out by a large group of investigators under Nametkin's direction. The results of this investigation were published in 1930 in the form of a monograph. The rich factual and methodological material collected in that monograph has not lost its value even now, notwithstanding the rapid development of the USSR petroleum industry during recent years.

A natural result of this work was the development of methods for the rapid and exact determination of the group composition of gasolines and other petroleum products. With E. A. Robinson, Nametkin solved the difficult problem of the analysis of cracking gasolines in regard to their group composition. The investigation in question resulted in an exact method for determining unsaturated hydrocarbons by volume [volumetrically?] and for determining aromatics by means of sulfur monochloride.

The composition of the highest boiling petroleum fractions also received due attention. It is well known that this problem has attracted the interest of a great number of investigators both in the USSR and abroad. At the Institute of Fossil Combustibles, Nametkin with the assistance of E. S. Pokrovskaya and other collaborators launched an extensive investigation of this particular field. This investigation included the synthesis of high-molecular hydrocarbons likely to enter into the composition of petroleum, as well as the application of various chemical and physicochemical methods for the characterization of narrow petroleum fractions. The work in question resulted in the clarification of the chemical composition of some high-boiling petroleum fractions.

In this connection, Nametkin's extensive studies of the constitution of paraffin wax and ceresin, hydrocarbons, carried out with S. S. Nifontova, may be mentioned. Applying nitration with dilute nitric acid to the investigation of these hydrocarbons, Nametkin developed methods for determining their structure. These studies led to new methods of purifying ozocerite in the course of the process for the production of ceresin.

Synthetic fatty acids obtained by the oxidation of paraffin hydrocarbons contained in petroleum are widely used as substitutes for natural fatty acids produced from fats. In the process of the oxidation of paraffin hydrocarbons, a considerable quantity of neutral compounds is formed. A study of these products is of interest not only from the purely practical standpoint of their most rational utilization, but also because the mechanism of the oxidation reaction is clarified in this manner. This explains the significance of the thorough investigation of the subject which Nametkin has conducted with V. K. Zvorykina and R. S. Teneva. In the course of the investigation, Nametkin established that very valuable normal high-molecular alcohols and aldehydes are formed. The presence of alcohols in the products of the oxidation of paraffin hydrocarbons enabled Nametkin to approach from a new angle the study of the oxidation of paraffin hydrocarbons with oxygen of the air at comparatively low temperatures.

A continuation of this series of studies is formed by Nametkin's and E. M. Rosenberg's work on the products of oxidizing cracking of hydrocarbons belonging to various groups. Their work furnished valuable data clarifying the chemistry of oxidative processes.

- 2 -

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Nametkin initiated the systematic investigation in the USSR of antiknock additives for fuels used in internal-combustion engines. The first large samples of tetraethyl lead were produced in his laboratory. He also carried out the first investigations of technological methods for producing tetraethyl lead and certain other substances.

The basic raw materials for the production of synthetic gasolines and of additives improving the quality of lubricating oils are unsaturated hydrocarbons obtained as a result of pyrolysis and cracking of crude petroleum. By catalytic polymerization under various conditions, these hydrocarbons can be converted into motor fuels. In 1932, Nametkin discovered a new type of polymerization of ethylic hydrocarbons under the action of sulfuric acid. He called this particular type of reaction hydropolymerization. This polymerization reaction, which was discovered in 1932 by Nametkin with A. A. Abakumova and M. G. Rudenko, consists in the formation of paraffin hydrocarbons from olefins. The hydrogenation into saturated hydrocarbons proceeds at the expense of olefins, which form polymers having a higher degree of unsaturation or aromatics. Nametkin established that the polymerization of olefins under the action of aluminium chloride also proceeds in this manner.

The discovery of the new process of hydropolymerization is of the greatest importance and offers extensive possibilities as far as the chemical treatment of cracking gases and pyrolysis gases is concerned.

Nametkin has carried out extensive work on the desulfurization and hydrogenation of Kapshirsk gasolines, which have a high sulfur content.

He is the author of a manual Petroleum Chemistry, the first edition of which appeared in 1932. This manual is not only the best work on the subject in the Russian language, but also has not been equaled by similar publications abroad.

Nametkin's work in petroleum chemistry and other fields is considered classical and has received recognition throughout the world.

- E N D -

- 3 -

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